Preliminary ecological notes on Ogygioses caliginosa Issiki & Stringer (Palaeosetidae (Proceedings of the First International Workshop on Lower Lepidoptera))

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Preliminary ecological notes on *Ogygioses caliginosa* ISSIKI & STRINGER (Palaeosetidae)*

Hiroshi KUROKO

1430-36 Tottori, Hannan-cho,
Sennnan-gun, Osaka 599-02, Japan

Ogygioses caliginosa belongs to the primitive family Palaeosetidae in the Hepialoidea and is endemic in Taiwan. The ecology of this species is little known.

It is interesting to clarify the biology of any species of moths. In particular, the morphological and ecological studies of primitive moths are of intrinsic interest because they include several fundamental and prototypical facts, and this information will give us very important data for a presumption of their phylogeny.

1. Habitat and Appearance

O. caliginosa is widespread on Mt. Alishan at 2000-2270m above sea level. In 1985, however, Dr. HEPPNER also observed this species at Fennchihwu (1450m high) which is located on the midslope of Mt. Alishan.

The moths appear from late June to early July on Mt. Alishan. Dr. ISSIKI, however, collected this species in April and May in 1927 on Mt. Rantaizan (about 3100m at the summit). But the altitude of the collecting place was almost certainly much lower than that of Mt. Alishan.

2. Resting Site

The adults were observed on the leaves of plants growing on steeply sloping banks facing a road of 2-4m wide and paved mostly with asphalt. The banks are 2-4m high and covered with various kinds of grasses and are not shaded but rather sunny. In some places the banks are kept moistened by subterranean water and here the surface is covered with mossses (Bryophyta); sometimes the adults of *Palaeomicroides* sp. (Micropterigidae) can be found there. The banks usually have an earthy projection at about halfway up or near the top, and below this a concave space is often formed. The adults were also found on the leaves near a hollow under the roots of a dead tree.

The adults usually rest singly or in small groups on the upper or lower surfaces of grass leaves, for example, bamboo, *Digitalis*, *Polygonum* and also fern fronds, etc, and sometimes

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on mosses, rarely on the rock substrate, or hang on spider's threads.

3. Resting Posture

The body is covered with the wings in a stegopterous posture, the angle of which is peculiarly sharp (about 20 degree). The antennae are usually thrust obliquely forward, but sometimes turned obliquely backward. The forelegs are projected obliquely forward; the midlegs obliquely backward bearing many yellowish raised scales on tibiae; the fore- and midlegs thus form an x-shape. The hindlegs are folded between femur and tibia, and held along the abdomen parallel to each other; the tips of the legs touch lightly on the substratum. When the moth is resting on vertical or inverse surfaces, the tips of the hindlegs are kept free from the substratum. Therefore the body is supported only by the fore- and midlegs.

HEPPNER (1987) mentions in his paper (Tyô to Ga, Vol. 38) that the forelegs are not used in resting and are held folded. Actually, however, the forelegs are not only very useful for supporting the moth's body when it is at rest, but also in letting the moth hang down its body by only the legs; hence I think he has misunderstood in this respect.

4. Swarming

The adults of *Ogygioses* swarm near the resting place in the afternoon. It has been confirmed that the swarming is composed of only males by netting all the members of a swarm. I have found mating pairs on the leaves of grasses near the swarming place. It appears that swarming of males, which have scent tufts on their abdomens, is important and useful in providing an opportusity for mating by attraction of females.

Swarming usually takes palce under the earthy projection of the bank. The concave space below the projection is very convenient to avoid the rain. A swarm is usually composed of 10-20 individuals, but sometimes more; they occupy flying space which is 10-30cm in width and 10-15cm in height; each individual flies horizontally in amplitude of 10-20cm as the swing of the pendulum. When it is windy, each individual flies facing into the wind. If the wind becomes too strong, swarming ceases.

The duration of swarming varies according to the weather conditions. It may last little more than 1.5 min., but in the optimum condition may continue for more than 20 min.

5. Factors for Swarming

Swarming usually begins from 2.00-2.30 p.m., and was observed until 5.00-6.00 p.m. On dull rainy days, however, it begins earlier at about 1 o'clock in the afternoon because of low lux. The most important factor for swarming is the strength of light which should be low, between 2000 and 10000 lux. The optimum illuminance is from 3000 to 4500 lux. Temperature is also a controlling factor. The range of temperature was from 15°C to 17.5°C during the present observations. The evening flight habit as is known in some hepialid moths might be a kind of a transformation from the swarming behaviour as is found in *Ogygioses*.